

REMARKS

Claims 1, 2, 4-7, 9-12, and 14 will be pending upon entry of this Response To Non-final Office Action. No claims have been amended herein.

Applicants respectfully request reconsideration and allowance of all pending claims.

1. Rejection of Claim 1 under 35 U.S.C. § 112, Second Paragraph

Reconsideration is requested of the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

In the current Office action, the Office states that, in claim 1, the phrase "at least one of plurality of portions includes information related to heat that would be generated by the heat patch" is indefinite "as what if [the] user remove[s] the same portion including the information to control the air." Applicants respectfully disagree with this assertion, as a person having ordinary skill in the art, when reading the claim in light of the context of the specification, would readily ascertain the language of claim 1.

The essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

- (A) The content of the particular application disclosure;
- (B) The teachings of the prior art; and

(C)The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

The information related to heat generated by the heat patch ("information") is adequately defined and clear in light of the specification. Specifically, the information can be located on only one of the plurality of portions or on multiple portions.¹ The information may be indicated on the impermeable cover and may vary as long as the cover (or portions that form the cover) provides information relating to heat generated by the heat patch with and/or without removing the cover.² The specification sets forth an example in which one or more of the portions may include alphanumeric information such as "REMOVING ONE COVER RAISES THE TEMPERATURE OF THIS HEAT PATCH TO 41 DEGREES C. & REMOVING BOTH COVERS RAISES THE TEMPERATURE OF THIS HEAT PATCH TO 44 DEGREES C."³ One skilled in the art, reading the claims in light of the specification, would easily ascertain what the information is being provided; that is, that the information is explaining what will happen to the temperature of the patch when one or more portions of the cover is removed.

Furthermore, even if only one portion discloses the information, and this portion is removed by the user, the user has already read the information, retained the knowledge, and proceeded accordingly. Thus, even though in one embodiment a single portion may disclose the information, the information disclosed conveys to the user the heat generated by the heat

¹ See the instant Specification at page 10, lines 3-16.

² *Id.*, at page 11, lines 2-8.

³ *Id.*, at page 10, lines 20-24.

patch when one or more of the portions are removed from the gas-permeable first layer. As such, in a situation where there is more than one portion, and only one portion discloses information, even if the user decides to remove the portion with the information, the portion with the information has supplied the user with the requisite knowledge to remove the remaining portions when/if the user deems necessary while fully comprehending the effects of their removal. Accordingly, it is clear to one skilled in the art reading the present application that any one portion or more than one portion can be removed prior to use and the user can easily ascertain the information related to heat that would be generated; that is, even if the portion removed includes the information related to heat that would be generated, one skilled in the art would be clear as to what the information provided.

Accordingly, claim 1 is definite under 35 U.S.C. § 112, second paragraph.

2. Rejection of Claims 1-2 and 4-7 under 35 U.S.C. § 103(a)⁴

Reconsideration is requested of the rejection of claims 1, 2, and 4-7 under 35 U.S.C. § 103(a) as being unpatentable over Zhang, et al. (U.S. Patent No. 5,658,583) in view of Usui (U.S.

⁴Applicant notes that in paragraph 5 of the Office Action, the Office has rejected claims 1-2 and 4-7 under 35 U.S.C. 102(b) as being anticipated by Zhang, et al. in view of Usui and DeCarlo. Applicant respectfully asserts that this was a typographical error in that the Office intended to reject claims 1-2 and 4-7 under 35 U.S.C. 103(a) as being obvious in view of the cited references as support by the 103(a) language in paragraph 5 of the Office Action. Applicant requests the Office to contact Applicant's representative, Mr. Christopher M. Goff, if this assumption is incorrect.

Patent No. 5,879,378) and further in view of DeCarlo, et al. (U.S. Patent No. 6,409,748).

Claim 1 is directed to a heat patch comprising an enclosure that includes a gas-permeable first layer and a second layer such that a perimeter of the gas-permeable first layer is bonded to a perimeter of the second layer. The gas-permeable first layer includes an inner surface and an outer surface, wherein said entire first layer is gas-permeable. The heat patch also includes a heating composition inside the enclosure, wherein the heating composition is capable of generating heat when a gas is received through the gas-permeable first layer. In addition, the heat patch includes a gas-impermeable cover that is detachably mounted to the outer surface of the gas-permeable first layer. The gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, wherein at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer.

Zhang, et al. disclose an apparatus, product formulation, and method for improved dermal penetration of pharmaceuticals. The apparatus includes a drug formulation reservoir and a heat-generating chamber separated by a first non-permeable wall. The reservoir and chamber are formed in or supported by a housing which may be formed completely or partially of a thermal insulating material. The heat generating chamber (e.g., heating element) includes means for generating controlled heat, and preferably, the heat generating means is a chemical composition

made of carbon, iron powder, water, and/or salt which is activated upon contact with air. The heat generation chamber is capped by a structure which has substantially non-air permeable areas such as areas preferably formed with good thermal insulating material, such as closed-cell foam tapes, and openings or areas comprising material with desired permeability to air. Alternatively, the entire structure may be made of semipermeable membrane with desired air permeability. The entire device is stored in an air-tight packaging, or container, or a removable barrier is employed to cover the semipermeable membrane(s) or openings to prevent premature activation of the heat-generating medium. One means to reduce the air flow rate to the heat-generating medium is to place a few small pieces of tape in a convenient place on the device. The tape can be peeled off and placed on top of the opening(s), the semipermeable membrane area(s) or the semipermeable membrane surface to reduce air flow and thus temperature.

Significantly, as recognized by the Office, Zhang, et al. fail to disclose a heat patch comprising an enclosure that includes a gas-permeable first layer and a second layer such that **a perimeter of the gas-permeable first layer is bonded to a perimeter of the second layer** as is required in Applicants' claim 1. Further, Zhang, et al. fail to teach or suggest a heat patch including a gas-impermeable cover that is detachably mounted to the outer surface of the gas-permeable first layer, wherein the gas-impermeable cover **includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer**, and wherein at least one of said

plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer.

The Office asserts at page 4 of the instant Office action that "Zhang et al. substantially discloses the invention as claimed, further, Zhang et al. discloses a heat patch gas-impermeable cover [that] includes a plurality of portions (31 shown in figure 1 shown to be detachably attached as disclosed in column 11, lines 7-11" Applicants respectfully disagree and submit that the "cover", or structure (22), in Zhang, et al. does not include a plurality of portions as is recited in Applicants' claim 1. Rather, the cover in Zhang, et al. is a single cover that includes substantially non-air permeable areas (24) and openings or areas (26) with desired permeability to air, neither of which are detachably mounted to the cover, wherein the openings or areas (26) may be covered during use by a piece of tape initially located on a different portion of the patch. The "convenient place" on which the pieces of tape are positioned in Zhang, et al. may be accurately characterized as including a plurality of portions, however, as noted above, the "cover" of Zhang, et al. merely has the capability to accept these pieces of tape during use of the patch in order to regulate the temperature of the patch.

Further, in the "Response to Arguments" section of the current Office action, the Office asserts that the openings in the cover of Zhang, et al. provide the same functionality as the plurality of portions of Applicants' claim 1. Applicants

respectfully assert that while a *prima facie* case of obviousness according to M.P.E.P. §2134 states that the prior art reference (or references when combined) need not teach or suggest all the claim limitations, the Office must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. Applicants respectfully disagree that the openings in the cover of Zhang, et al. provide the same functionality as the plurality of portions of Applicants' claim 1, and as such, it would not have been obvious to modify the openings in the cover of Zhang, et al. to arrive at the plurality of portions in the cover of Applicants' claim 1. Specifically, the pieces of tape in Zhang serve an entirely different purpose than the plurality of portions in Applicants' claim 1. Specifically, the pieces of tape are placed on Zhang to prevent air from entering the patch, whereas the plurality of portions in Applicants' claim 1 can be removed to allow air to enter the patch. As such, the pieces of tape used in Zhang, et al. serve an entirely different function than the plurality of portions in Applicants' claim 1. Moreover, placing a piece of tape over an opening in Zhang, et al. to attempt to regulate heat can only be done during use of the patch. That is, the entire cover of Zhang, et al. would have to be removed in order to use the pieces of tape. Conversely, the plurality of portions in Applicants' claim 1 are detachably placed on the heat patch before use, and, can be removed one at a time, or, altogether if desired, in order to regulate the temperature of the heat patch.

Recognizing that Zhang, et al. fail to teach or suggest each and every limitation of Applicants' claim 1, the Office attempts to find each and every element of claim 1 as required by the M.P.E.P. for a determination of *prima facie* obviousness by citing the Usui and DeCarlo, et al. references for combination with Zhang, et al.

Usui discloses an exothermic device that has an exothermic composition enclosed in a flat pouch formed of a film or sheet. The exothermic composition is formed in two layers including an exothermic reaction layer and a single reaction auxiliary layer. The exothermic reaction layer includes iron powder and the auxiliary layer includes other ingredients. Specifically, a known exothermic composition may be used, which includes, for example, a metal powder, carbon powder, a metallic chloride, water, a water retainer, an inhibitor, a surface active agent, and an anti-foaming agent. The pouch has at least one surface formed of a gas-permeable flat film or sheet in order to allow the exothermic composition enclosed therein to contact oxygen in the atmosphere. Exemplary materials for use as the gas-permeable flat film or sheet include, for example, polymeric materials such as polyethylene, polypropylene, polyamide, polyester, polyvinyl chloride, polyvinylidene chloride, polyurethane, polystyrene, saponified ethylene-vinyle acetate copolymer and ethylene-vinyle acetate copolymer; paper; clothes; and the like. In one particular embodiment, the pouch is formed by placing a gas-tight backing film over the exothermic composition placed on a single gas-permeable film and heat-

sealing the peripheries of the gas-permeable film and the backing film.

DeCarlo, et al. disclose a heating pad capable of rapid initial heat transfer to a heating pad member by means of a removable gel pack member which is releasably attached to the heating pad member. The removable gel pack member is releasably attached to the second layer of the heating pad cover and comprises a heat-retentive gel which is heated to a predetermined temperature prior to attachment. In one embodiment, when the gel pack is placed in substantial contact with an anatomical portion of subject in need of heat therapy, heat is transferred to the subject through the interface formed by the inner layer of the pad. The inner and outer sheets of the pad are sealed along the edges by means known in the art. Additionally, the gel pad member may have a temperature indicator, such as a tape containing an indicating temperature-sensitive liquid crystal substance, which visually indicates to the user that the gel pack member has been heated to an excessive temperature for normal use in a heating pad.

In order for the Office to show a prima facie case of obviousness, M.P.E.P. § 2142 requires a clear articulation of the reasons why the claimed invention would have been obvious. Specifically, the Supreme Court in KSR International Co. v. Teleflex Inc., 550 U.S. 398, 82 USPQ2d 1385, 1396 (2007) noted that the burden lies initially with the Office to provide an explicit analysis supporting a rejection under 35 U.S.C. 103. "[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated

reasoning with some rational underpinning to support the legal conclusion of obviousness."⁵ The Court in KSR International further identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966)). Specifically, as previously required by the TSM (teaching, suggestion, motivation) approach to obviousness, one exemplary rationale indicated requires some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. Specifically, to reject a claim based on this rationale, the Office must articulate the following: (1) a finding that there was some teaching, suggestion, or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at each and every limitation of the claimed invention; (2) a finding that there was reasonable expectation of success; and (3) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness. The Office has failed to meet its burden under number (1) above, as the cited references fail to show each and every limitation of Applicants' invention and there is no apparent reason for one skilled in the art to modify and/or combine the references to

⁵ *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

arrive at each and every limitation. It simply would not have been obvious to one skilled in the art to arrive at Applicants' claimed combinations.

Specifically, nowhere do the cited references teach or suggest a heat patch comprising a gas-impermeable cover that is detachably mounted to the outer surface of a gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of the plurality of portions includes information related to heat that would be generated by the heat patch when one or more of the plurality of portions is removed from the gas-permeable first layer. At best, the Zhang, et al. reference discloses a layer that may be partially covered to reduce air flow to the heat-generating medium, however, as noted above, Zhang, et al. do not disclose a cover **formed** of a plurality of portions detachably mounted to a gas-permeable layer⁶ to accomplish the result as required in Applicants' claim 1. Rather, as noted above, Zhang, et al. disclose pieces of tape placed in a convenient place on the device that are removed and subsequently placed over portions of the cover to reduce air flow through the cover. Furthermore, although Zhang, et al. describe that the device may employ a removable barrier over the semipermeable membrane(s) or openings to prevent premature activation of the heat-generating medium, Zhang, et al. do not disclose that the pieces of tape used to reduce the air flow are part of the disclosed removable barrier. In contrast to the present invention, where removable portions

⁶ See the instant Specification at page 4, lines 5-6 and lines 21-22.

are included within the cover and are removed to expose a portion of the gas-permeable first layer, the pieces of tape in Zhang, et al. are removed from another portion of the device and placed over the cover such that the exposure of the gas-permeable layer is limited. The Usui and DeCarlo references fail to overcome these shortcomings as the Usui reference merely teaches an exothermic device that has an exothermic composition enclosed in a flat pouch formed of a film or sheet, and the DeCarlo reference merely teaches a heating pad with a gel pad member that optionally may have a temperature indicator, which indicates to the user that the gel pad member has been heated to an excessive amount. As such, none of the cited references, alone or in combination, teach or suggest a heat patch comprising a gas-impermeable cover that is detachably mounted to an outer surface of a gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer.

Furthermore, no where in any of the cited references is it taught or suggested that at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer. At best, the DeCarlo, et al. reference discloses a liquid crystal temperature-indicator that visually alerts the user that the pad has been excessively heated. However, as noted above, DeCarlo, et al. do not disclose at least one of a plurality of portions that includes information related to heat generated by the heat

patch when one or more of the plurality of portions is removed from the gas-permeable first layer. Applicants initially submit that the optional temperature indicator of DeCarlo, et al. is not attached to a gas-permeable first layer. Further, the temperature indicator in DeCarlo, et al. does not provide information as to what happens when the indicator is removed. Specifically, in contrast to the present invention, the indicator in DeCarlo, et al. is not meant to be removed. A user of the heating pad in DeCarlo, et al. would want the indicator to remain on the heating pad, so that the user will know whether or not the pad has been heated excessively. If a user were to remove the indicator disclosed in DeCarlo, et al. from the heating pad, the indicator would not be capable of performing its described and intended function because removal of the indicator would prohibit the indicator from indicating the actual temperature of the heating pad.

The Office asserts on page 5 of the instant office action that "with respect to the limitation of 'and wherein at least one of plurality of portions includes information related to heat generated by the heat patch when one or more of plurality of portions removed from said gas-permeable first layer' has been treated as an intended use recitation." Applicants respectfully disagree. M.P.E.P. §2114, citing In re Schreiber, 128 F.3d 1473, 1477-78, states that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. Further, §2114 states that "[a]pparatus claims cover what a device is,

not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469. In this case, the recitation "wherein at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer" is in fact a positively claimed structural limitation and does not merely recite the intended function or use of the invention. Although information included in certain positions of the portion may not be visible until the time at which the portion is removed, the information is nonetheless present on one or more of the plurality of portions at all times, as it is a structural characteristic of the heat patch. The recitation "related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed" refers to the type of information that is included on one of the portions. The portion does not need to actually be removed for the portion to structurally include the information. Accordingly, Applicants submit that the above-mentioned limitation is not an intended use limitation, but rather imparts a structural characteristic to the claimed invention that is not shown in any of the cited references.

Moreover, even if the DeCarlo, et al. reference taught the limitation of Applicants' requiring information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer (which, as noted above, Applicants respectfully assert that the reference does not), there is no reason to combine the DeCarlo, et al. reference with Zhang, et al. and

Usui. Particularly, the DeCarlo, et al. reference is directed to a completely different mechanism of heating from that of Zhang, et al. and Usui. More specifically, as described above, Zhang, et al. and Usui (and Applicants' claimed invention) require an exothermic reaction to generate heat. By contrast, DeCarlo, et al. teach a heat-retentive gel that is heated to a predetermined temperature prior to use. As such, there is simply no apparent reason for one skilled in the art, reading the Zhang, et al. and Usui references to look to DeCarlo, et al. for possible combination.

Based on the foregoing, none of the cited references, alone or in combination, teach or suggest a heat patch comprising a gas-impermeable cover that is detachably mounted to an outer surface of a gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer as is recited in Applicants' claim 1. As there is no teaching or suggestion in the cited references, alone or in combination, to include a gas-impermeable cover in a heat patch wherein the cover is detachably mounted to the outer surface of a gas-permeable first layer, wherein the cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of said plurality of portions includes information related to heat that would be

generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer, there is no teaching or suggestion to provide the necessary reasoning needed by one of ordinary skill in the art to modify the heat patch cover to arrive at the heat patch as required in claim 1. Accordingly, claim 1 is patentable over the cited references.

Claims 2 and 4-7 are depend from claim 1 and are patentable over the cited references for the same reasons as claim 1 set forth above, as well as for the additional elements they require.

3. Rejection of Claims 9-12 under 35 U.S.C. § 103(a)

Reconsideration is requested of the rejection of claims 9-12 under 35 U.S.C. § 103(a) as being unpatentable over Zhang, et al. (U.S. Patent No. 5,658,583), Usui (U.S. Patent No. 5,879,378), and DeCarlo, et al. (U.S. Patent No. 6,409,748) in view of Kuratomi, et al. (U.S. Patent No. 4,747,841).

Claim 1, from which claims 9-12 directly or indirectly depend, is discussed above.

The Zhang, et al., Usui, and DeCarlo, et al. references are discussed above. Significantly, as discussed above, the Zhang, et al., Usui, and DeCarlo, et al. references fail to teach or suggest a heat patch comprising a gas-impermeable cover that is detachably mounted to the outer surface of a gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of said

plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer. Furthermore, the above cited references fail to provide a reasoning for modifying and/or combining the references to arrive at each and every limitation of Applicants' claimed combination. Kuratomi, et al. fail to overcome the above shortcomings.

Kuratomi, et al. disclose a method and apparatus for moxibustion comprising feeding air to a heat generating composition in contact with an herb material comprising moxa. The heat generating composition comprises pyrogen and the herb material is located adjacent to a skin surface. The pyrogen used comprises a heat generating composition consisting of iron powder, carbon, cellulose, chloride, and water. The air causes the pyrogen to generate heat by oxidation, whereby the herb material is heated and vaporized and the generated heat and vapor act on the skin, causing moxibustion effect. An oxygen-impermeable package body is used to pack the pyrogen while not in use, and a gas-permeable internal package is used to house the pyrogen. The internal package may be formed of woven fabric of synthetic resin, cotton, etc. The exterior of the internal package is covered with the external package formed of a non-permeable material such as a synthetic resin film or thin plate, preventing the pyrogen from contacting the air. The pyrogen can be adjusted for the desired heat generation time and temperature by adjusting the composition of the material or the ventilating structure. Temperatures of 65°C are common at the heat

generation source while the temperature at the point of contact with human skin is about 40°C to about 45°C.

Significantly, Kuratomi, et al., as with the Zhang, et al., Usui, and DeCarlo, et al. references, fail to teach or suggest a heat patch comprising an enclosure that includes a gas-permeable first layer and a second layer, a heating composition inside the enclosure, and a gas-impermeable cover that is detachably mounted to the outer surface of the gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer.

As the references, alone or in combination, fail to teach or suggest all of the elements of claim 1 and, further, there is no motivation or apparent reason to modify and/or combine the cited references to arrive at each and every limitation of Applicants' claim 1, claim 1 is patentable over the cited references.

Claims 9-12 depend directly or indirectly from claim 1 and are thus patentable over the cited references for the same reasons as set forth above for claim 1 as well as for the additional elements they require.

4. Rejection of Claim 14 under 35 U.S.C. § 103(a)

Reconsideration is requested of the rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Zhang, et al. (U.S. Patent No. 5,658,583), Usui (U.S. Patent No. 5,879,378), and DeCarlo, et al. (U.S. Patent No. 6,409,748) further in view of Christy, et al. (U.S. Patent No. 5,786,578)⁷.

Claim 1, from which claim 14 depends, is discussed above.

The Zhang, et al., Usui, and DeCarlo, et al. references are discussed above. Significantly, as discussed above, the Zhang, et al., Usui, and DeCarlo, et al. references fail to teach or suggest a heat patch comprising a gas-impermeable cover that is detachably mounted to the outer surface of a gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or more of said plurality of portions is removed from said gas-permeable first layer. Furthermore, the above cited references fail to provide a reasoning for modifying and/or combining the references to arrive at each and every limitation of Applicants' claimed combination. Christy, et al. fail to overcome the above shortcomings.

⁷ Applicant notes that in the current Office action, the Office has listed Christy, et al. as having a U.S. Patent number of 5,692,238. Said number, however, is the U.S. Patent number of Watson, Jr., which was a reference cited in the previous Office action. Applicant respectfully asserts that this was a typographical error in that the Office intended to cite Christy, et al. as having the U.S. Patent number of 5,786,578.

Christy, et al. disclose a microwave-heatable therapeutic exercise putty having at least one transparent wall. A thermochromic heat sensitive semiconductor material is affixed to the transparent wall in intimate heat transfer contact with the putty mass. The thermochromic material provides a visual first indication through the transparent wall when the putty mass has been microwave-heated to a heat exercise therapy acceptable temperature range of about 40 to about 47 degrees C. and a visual second indication through the transparent wall when the putty mass has been microwave heated to a temperature range of about 54 to about 60 degrees C. or above. In one embodiment of the invention, a heat sensitive strip, label, membrane or coating, which includes a thermochromic semiconductor material is affixed to the inside of the bottom wall of the base portion of the container, and varies in transparency and color in response to various temperature levels to which the material is exposed.

Significantly, however, Christy, et al., as with the Zhang, et al, Usui, and DeCarlo, et al. references, fail to teach or suggest a heat patch comprising an enclosure that includes a gas-permeable first layer and a second layer, a heating composition inside the enclosure, and a gas-impermeable cover that is detachably mounted to the outer surface of the gas-permeable first layer, wherein the gas-impermeable cover includes a plurality of portions detachably mounted to the outer surface of the gas-permeable first layer, and wherein at least one of said plurality of portions includes information related to heat that would be generated by the heat patch when one or

more of said plurality of portions is removed from said gas-permeable first layer.

As the references, alone or in combination, fail to teach or suggest all of the elements of claim 1 and, further, there is no motivation or apparent reason to modify and/or combine the cited references to arrive at each and every limitation of Applicants' claim 1, claim 1 is patentable over the cited references.

Claim 14 depends from claim 1 and is thus patentable over the cited references for the same reasons as set forth above for claim 1 as well as for the additional elements it requires.

In addition to the recitations in claim 1, claim 14 further requires that at least some of the plurality of portions are different colors, the colors supplying the information related to heat generated by the heat patch when one or more of the plurality of portions is removed from the gas-permeable first layer. Applicants note, as is addressed above, that the thermochromic semiconductor material disclosed in Christy, et al. can vary in transparency and color in response to various temperature levels. Applicants submit that the semiconductor material is not attached to a gas-permeable first layer as is recited in Applicants' claims. In addition, the semiconductor material disclosed in Christy, et al. is not meant to be removed from the putty container such that the semiconductor material is not detachably connected to the garment as is required of the plurality of portions of Applicants' claim 14. As such, claim 14 is patentable over the cited references for these additional reasons as well as for the reasons set forth above for claim 1.

CONCLUSION

In light of the foregoing, Applicants request withdrawal of the rejections of claims 1, 2, 4-7, 9-13, and 14 and allowance of all pending claims. The Commissioner is hereby authorized to charge any government fees which may be required to Deposit Account No. 01-2384.

Respectfully Submitted,

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